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Patent- og Varemærkestyrelsen
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1

A SHORT ONE-PIECE CATHETER

Field of the invention

5 The present invention relates to a catheter for urinary catheterization, e.g. for catheterization of a person. The catheter is a short one-piece catheter with a handling member. In particular, the invention relates to a catheter wherein the handling member is provided in a dimension allowing safe catheter handling.

10 **Background of the invention**

A urinary catheter normally forms an oblong catheter tube or a conduit with similar function for insertion into a urinary canal of an individual. Some catheters are formed with a relatively short conical connector part for connecting the catheter to elongation tubes or drainage containers for collecting urine. By gripping the oblong catheter tube, the catheter 15 is manipulated and inserted into the urinary canal. Existing catheters are designed to give substantially no sensation of pain during insertion. Accordingly catheters are typically provided with a smooth and slippery surface optimised for safe and comfortable insertion into the urethra. However, due to the slipperiness of the surface it may often be difficult, not least for a user with reduced dexterity, to manipulate the catheter to avoid 20 contamination of the catheter during use.

Handles for urinary catheters have previously been disclosed. Typically, the handles are attached to, or they are attachable to, a part of the oblong catheter tube. The handles thus support handling of the catheters. However, since the handles engage the catheter along the insertable elongated shaft, i.e. along a relatively narrow and sometimes 25 lubricious tubular catheter part, it can be difficult to establish a solid engagement between the catheter and the handle. Moreover, due to the fact that the handles engage with a part of the oblong catheter tube, the catheter must be of a length which coextends the necessary insertable length of the catheter, i.e. the length which is necessary in order to open the bladder for urinary drainage.

30 Existing catheters not only have a considerable length, but they are also typically packed in an elongated condition. Therefore, the existing catheters may be troublesome to handle and to bring along, not least for the individuals for whom catheterization is a procedure to be repeated several times a day.

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Description of the invention

It is an object of a preferred embodiment of the present invention to overcome the aforementioned disadvantages of the known catheters. Furthermore, the invention provides a catheter which is simple, discrete, and easy to convey.

40 Accordingly, the present invention relates to a catheter for draining a bladder, said catheter comprises a first part having a first cross-sectional area for the insertion into a body canal and a second part having a second cross-sectional area adapted to support handling of the first part. The first part and the second part are joined in a fixed connection. The length of the second part is at least 1/3 of the total length of the catheter,

and the total length of the catheter is preferably at most 160 mm. The length of the first part of the catheter should allow the first part of the catheter to open the bladder, i.e. the first part of the catheter should extend from the inlet of the urinary canal to the bladder. Accordingly, the first part could be between 40 and 100 mm, e.g. between 50 and 80 mm.

5 such as 70 mm. The length of the second part should allow a firm grip. It has been found that a gripping part with a length of 50 mm. or more allows the user to hold and to manipulate the catheter. Accordingly, the length of the second part could be between 50 and 110 mm, e.g. between 60 and 90 mm such as 80 mm. The catheter is thus substantially shorter than existing catheters.

10 In the preferred embodiment, the first and second parts may be made in one piece, however, two or more pieces may be made separately and jointed together afterwards. In the case where the pieces are made separately, they may in any way be adhesively bonded, e.g. by gluing, welding or by any similar process which ensures that the parts can not readily be separated. The cross-sectional area of the second part should be larger than 15 that of the first part, e.g. such that ratio between the cross-sectional areas of the two parts is in the order of 1:10 or more, i.e. so that the second part has a cross-sectional area which is up to 10 times, or more, larger than the cross-sectional area of the first part. Alternatively, or furthermore, the second part could be made from a material which is different from the material of the first part, e.g. a material which supports firm gripping, 20 e.g. a material which exhibits a relatively large frictional resistance against sliding between the fingers of the user, e.g. a soft resilient rubber material. In order further to improve the grip, the second part may be provided with knobs, grooves, slots or similar grip improving surface shapes or structures. The second part may coextend the first part to form a catheter with a substantially oblong, linear, shape or the second part may coextend the 25 first part bending radially outwardly to form a catheter with a non-linear shape.

The first part of the catheter is to be inserted into a urinary canal and therefore this part may be made in a flexible material so that, during insertion, it follows the course of the canal without posing substantial pain or malaise. To ensure easy insertion of this first part, the second part could be less flexible, i.e. have a higher bending moment, than the 30 first part. Furthermore, also to ensure easy insertion, the second part could be formed ergonomically to support a firm grip. The second part could as an example have grip improving means such as one or more bulges, a knob or a radially outwardly extending handle supporting a firm grip during insertion and withdrawal of the catheter from the urinary canal.

35 The first and/or the second part of the catheter or at least a part of any of these two parts, could be made from a thermoplastic elastomer or other thermoplastic materials or from a curable elastomer material or any mixture or combination thereof. Thermoplastic elastomer materials may comprise materials like Polyurethane elastomers (e.g. EstaneTM), Polyetherblockamide elastomers (e.g. PebaxTM) Polyester elastomers (e.g. HytreTM), 40 polyolefin elastomers (e.g. SantopreneTM and e.g. EngageTM), Polystyrene elastomers (e.g. KratonTM compounds) and PP elastomers with controlled tactic and atactic domains. Other thermoplastic materials may comprise PVC, e.g. plasticised PVC, Polyethylene homo- or co-polymers, polypropylene homo- or co-polymers, Polyamide types, Polyester types, fluorine-containing thermoplastic materials such as fluorine-containing elastomers among

others. Curable elastomer materials may comprise silicone elastomers and curable polyurethane elastomers among others.

- It may sometimes be necessary to collect the urine drained from the bladder. This may be achieved either by including a connection means onto the second part of the catheter such that it can be connected to a reservoir or receptacle, or alternatively, by including a reservoir directly connected via a tubular canal or any other type of conduit to the second part. In this case, the catheter and the reservoir constitute a single entity.

- In order to ease the insertion, at least the first part of the catheter or at least a part of the first part of the catheter may have a surface with low frictional characteristics. On this part, the surface could correspond to the surface of a regular gel-lubricated catheter, a hydrophilic catheter or any catheter known per se. However, if the entire surface of the catheter is slippery it may be difficult, especially for persons with reduced dexterity, to manipulate the catheter. Therefore, the second part of the catheter is preferably not provided with a surface with a low frictional characteristics but, as described previously, rather with a highly frictional surface, e.g. made from a soft resilient rubber material.

- The catheter or at least the first part thereof may be wrapped in a packaging so that the catheter is sterile prior to breaking the packaging seal, i.e. prior to insertion. This packaging may contain two or more compartments, i.e. a first compartment enveloping the first part of the catheter and a second compartment enveloping the second part of the catheter. The two compartments may be sealed from each other to prevent a lubricating or sterilising substance in the first compartment to contaminate the second part of the catheter, i.e. the handling part. Preferably, the first part of the catheter is packed in a gas impermeable material preventing a lubricating substance applied to the first part to dry out, whereas the second part of the catheter is packed in a material which is at least partly transparent, thus allowing the user to see the second part through the material.

Detailed description of the invention

- A preferred embodiment of the invention will now be described in details with reference to the drawing in which:

Fig. 1 shows a catheter according to the present invention,

Fig. 2 shows a catheter wrapped in a two-compartment packageing.

- In Fig. 1 a catheter according to the present invention is shown. The catheter comprises a first elongate tubular catheter part 1 adapted for insertion into urethra or an artificial urinary canal and a second elongate tubular catheter part 2 adapted for manipulation of the catheter. The tubular catheter parts may have any cross sectional shape, e.g. an oval shape or a circular shape. The catheter may preferably have further gripping means 3 for easing a firm grip and manipulation of the catheter. At the proximal end, the first catheter part is provided with holes 4 enabling urine to drain into the catheter. At the opposite end of the catheter, an outlet 5 allows urine to drain into a toilet or into a collection device, e.g. a bag. The first part 1 may have a surface which is smooth and slippery whereas the second part 2 preferably has a surface which is highly frictional, e.g. a surface with a

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surface pattern which increases the friction between the second part and the fingers of the user.

In Fig.2 a catheter wrapped in a two-compartment packaging is shown. A first compartment 11 is separated from a second compartment 12 by a leak tight seal 13.

Claims

1. A catheter for draining a bladder, said catheter comprising a first part having a first cross-sectional area for the insertion into a urinary canal and a second part having a second cross-sectional area, and adapted to support handling of the first part, the first part coextending the second part and the first and second parts being joined in a fixed connection, wherein the length of the second part constitutes at least 1/3 of the total length of the catheter.
- 5 10 2. A catheter according to claim 1, provided in a length which is 150 mm. or shorter.
- 15 3. A catheter according to claim 1 or 2, wherein the first and second parts are made in one piece.
- 20 4. A catheter according to claim 1 or 2, wherein the first and second parts are made in two, or more, pieces and subsequently assembled in a fixed joint.
- 25 5. A catheter according to any of the preceding claims, wherein the second part is adapted to have a higher bending moment than the first part.
- 30 6. A catheter according to any of the preceding claims, wherein the second part forms at least one radially extending handling member, supporting a firm grip during insertion and withdrawal of the catheter from the urinary canal.
- 35 7. A catheter according to any of the preceding claims, wherein the second part comprises connection means for connecting the part to a collecting reservoir for collecting drained fluids from the catheter.
8. A catheter according to any of the preceding claims, wherein the second part comprises a collecting reservoir for collecting drained fluids from the catheter.
9. A catheter according to any of the preceding claims, wherein the first part is enveloped in a first compartment of a package and the second part is enveloped in a second compartment of a package.
- 35 10. A catheter according to claim 9, wherein the first compartment is sealed from the second compartment.

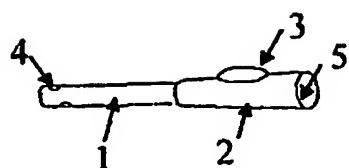


Fig. 1

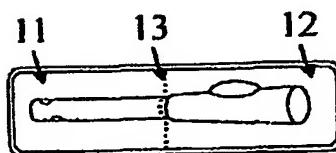


Fig. 2